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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,924	10/21/2005	Andreas Bacher	WAS0729PUSA	1227
22045	7590	07/09/2008	EXAMINER	
BROOKS KUSHMAN P.C. 1000 TOWN CENTER TWENTY-SECOND FLOOR SOUTHFIELD, MI 48075			NGUYEN, VU ANH	
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			4171	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,924	Applicant(s) BACHER ET AL.	
	Examiner Vu Nguyen	Art Unit 4171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 11-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/28/2005</u> . | 6) <input checked="" type="checkbox"/> Other: <u>NPL (2 documents)</u> . |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 11-12, 14-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Quintens et al. (EP 1,127,706).

3. Regarding claim 11, the applicants claim a process for coating an inkjet recording substrate comprising applying a coating prepared from a pulverulent coating material composition comprising (A) one or more pulverulent silane-containing polyvinyl alcohol (PVA) with a degree of hydrolysis of 75-100 mol%, and (B) one or more water-redispersible polymer powders based on homopolymers or copolymers of one or more monomers selected from vinyl esters, C1-C15 alkylcarboxylic acids, (meth)acrylic esters of C1-C15 alcohols, vinyl aromatics, olefins, dienes, and vinyl halides.

4. Quintens et al. (Quintens, hereafter) teaches a process for coating an inkjet recording substrate comprising applying a coating prepared from silane-containing PVA and a film-forming polymer (Abstract). The silane-containing PVA includes Kuraray Poval R-1130, R-2105, and R-3109 (Table 1), which are pulverulent (See attached product specifications) and have a degree of hydrolysis of 98-99% (Table 1). The film-

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forming polymer includes conjugated diene polymers, homopolymer and copolymers of (meth)acrylic acid esters, and others [0031].

5. Claim 12 depends on claim 11 and further recites the silane-containing PVA to be based on fully or partially hydrolysis of vinyl acetate copolymers. The disclosed silane-containing PVA is prepared in the same way [0026].

6. Claim 14 depends on claim 11 and recites the water-redispersible polymer powders to be homopolymers or copolymers selected from vinyl acetate homopolymers and others. The disclosed film-forming polymer includes polyvinyl acetate [0027].

7. Claim 15 further limits the homo- or co-polymers of claim 14 to contain other monomers, including ethylenically unsaturated mono- and di-carboxylic acids, derivatives of (meth)acrylamides, monoesters and diesters of fumaric acid and maleic acid, maleic anhydride, and others. Correspondingly, the disclosed film-forming polymer includes vinylacetate-maleate copolymers and vinylacetate-acrylate copolymers [0031].

8. Claim 16 specifies the process of claim 11 involving jointly drying an aqueous solution of the silane-containing PVA and an aqueous polymer dispersion of the water-redispersible polymer, optionally following addition of protective colloid.

Correspondingly, the disclosed process involves adding the film-forming polymer in an aqueous solution of the silane-containing PVA while stirring ([0029] and [0060]).

9. Claim 17 specifies the drying process in claim 16 to be a spray-drying process. The prior art teaches a coating process which includes "any conventional coating technique." Also disclosed is a slide hopper coating process, which is a spray-coating technique [0048].

10. Claim 18 further limits the scope of claim 11 so that the components (A) and (B) are present in a solid weight ratio of 95:5 to 20:80. Correspondingly, the disclosed composition comprises 30-60 wt% of the silane-containing PVA [0028] and 5-20 wt% of the film-forming polymer [0034].

11. Claim 19 specifies the substrate in claim 11 to comprise paper, polymer-coated paper, or polymeric film inkjet recording materials. The disclosed substrate also comprises the claimed materials [0049].

12. Claim 20 recites a coating slip composition comprising the components (A) and (B) of claim 1 and filler, a dispersant, and water. The disclosed composition is a coating solution comprising water, a silane-containing PVA, and a film-forming polymer as discussed above. It further comprises surfactants [0041] and silica pigments [0023].

13. Claim 21 specifies the solid content of the composition in claim 20 to be 30% or more. The disclosed coating solution also contains more than 30% by weight of solid content (See, for example, Sample 4 in Table 2 and [0056]).

14. Claim 22 specifies the dispersant in claim 20 to be a cationic dispersant. The disclosed surfactants include cationic surfactants [0041].

15. Claim 23 depends on claim 20 and further claims at least one shading dye, pigment, or mixture thereof. The disclosed coating solution further contains TiO_2 as whitening agent [0046].

16. Claim 24 specifies the filler in claim 20 to at least one selected from silica, calcium carbonate, clay, bentonite, alumina, and titanium oxide. The disclosed pigments include silica, clay, alumina, titanium oxide, calcium carbonate, and others [0022].

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17. Claim 25 claims silica present in claim 20 to be used as a filler. The examiner notes that the disclosed pigments are employed as fillers (Encyclopedia Britannica).

18. Claim 26 recites an inkjet recording material comprising a paper or polymer-coated substrate, produced by the process of claim 20. The prior art teaches inkjet recording materials comprising paper and polymer-coated substrate that are coated by the disclosed process ([0049], [0050], Examples, and Claims).

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

21. Claim 13 is rejected under 35 U.S.C. 103 as being unpatentable over Quintens et al. (EP 1,127,706) in view of Kuraray R-Polymer Technical Data (http://www.poval.jp/english/poval/s_grades/sg_r.html).

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22. Claim 13 depends on claim 11 and further recites the silane-containing PVA to be obtained by copolymerization of 0.01-10 mol% of one or more silane-containing comonomers selected from a number of compounds that are not listed here but fully taken into consideration.

23. The silane-containing PVA polymers disclosed by Quintens include those prepared from copolymerization of vinyl acetate with silane-containing comonomers that are specific examples of the recited comonomers [0026]. Quintens additionally teaches that silanol modified PVA polymers, such as POVAL R polymers are useful [0025]. However, the prior art is silent as to the mole percents of these comonomers in the copolymers.

24. KURARAY POVAL R-polymers are water-soluble polymer, which has peculiar functional groups, i.e., silanol groups, in their molecular structures. The silanol groups are reactive with inorganic substances such as silica or alumina. R-polymers can be easily cross-linked by changing pH of their aqueous solutions or by mixing with inorganic substances and can form water resistant films. R-polymers are mainly used as binders for inorganic substances and as surface coating agents for organic materials containing inorganic substances such as paper.

25. Since the function of the silanol groups is to function as binding sites, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized the amount of silanol groups used in order to produce polymers having the desired level of binding. Determining this would be well within the ordinary skill in the art.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vu Nguyen whose telephone number is (571)270-5454. The examiner can normally be reached on M-F 7:30-5:00 (Alternating Fridays).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 4171

Vu Nguyen
Examiner
Art Unit 4171